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GOVERNMENT OF PUNJAB

DEPARTMENT OF LOCAL GOVERNMENT

(Local Government-4 Branch)

[Punjab Municipal Bhawan, Sector 35-A, Chandigarh]

NOTIFICATION

The 2nd June, 2021

STANDARD OPERATING PROCEDURE (SOP)

for

Solid Waste Management

No.5/51/2021-11g4/1790.-

1. Purpose

The purpose of this Standard Operation Procedure (SOP) is to ensure management/ disposal of Municipal Solid Waste as per the provisions of Solid Waste Management Rules, 2016, Punjab State Solid Waste Management Policy 2018 and The Punjab Solid Waste Management and Cleanliness & Sanitation Bye-Laws 2020. Accordingly, the SoP has been notified and to be adopted by all Urban Local Bodies of Punjab state with immediate effect from date of notification.

2. Key principals/steps to be followed of sustainable solid waste management

- a) Management by adoption of 3Rs principles by all waste generators.
- b) Management by creation of awareness through (Information, Education & communication) and capacity building of all stakeholders.
- c) Management by practical steps for SWM as under:
 - i) Segregation of Waste at Source by all stakeholders/ Waste Generators.
 - ii) D2D Collection of waste in a segregated manner in compartmentalised and covered vehicles (tricycles/ mechanised/ motorised).
 - iii) Transportation of waste to processing site/ cattle feeding site in a segregated manner.
 - iv) Processing of wet waste by way of composting/ bio-methanation/ cattle feeding by adopting on-site or decentralised management/ processing nearest to its point of generation to cut unnecessary transportation cost and minimum impact on environment.
 - v) Transportation of dry waste to MRF(s) for further segregation and channelization.

- vi) Disposal of inerts, if any, to Sanitary Landfill facility.
- vii) Maintenance of cleanliness in SWM Units/ Sites and proper recording of operations in the logbooks.

3. Procedure for operation of Wet Waste processing facilities

- i) Ensuring availability of adequate processing facility for processing of wet waste (aerobic/ anaerobic/ mechanised composting/ bio-methanation) by the ULBs with proper shed cover and protection.

Example: 10-12 Honeycomb Aerobic Compost Pits (size 3m length x 1.5 m breadth x 1.0 m height each or 1m x 1m x 1m) required for a population 10000 or 2000 HHs or one TPD wet waste.

- ii) Beautification of Waste Processing unit to give it an aesthetic look. The Processing Unit to display the Capacity board.
- iii) Mandatory third level segregation before feeding the wet waste into the compost pits/ windrows/ composter/ any other processing mechanism for zero tolerance of non- biodegradable dry waste mixed into the wet waste.
- iv) Feeding of wet waste into half numbers of compost pits in the Unit in proportion daily (means wet waste of a day will be feed in half numbers of pits in equal proportion).

Example: For a population 10000 or 2000 HHs or one TPD wet waste, 12 pits required. For the first month, waste should be fed into 6 pits proportionately and for next month in remaining 6 pits and it should become a cycle.

- v) Mixing of horticulture waste collected from households or sites where on-site composting is not feasible with the domestic wet waste or can be separately composted.
- vi) Addition of dry leaves/ cut grass or cow dung spray or prepared compost in layers on the wet waste for more nutrient rich, speedier composting and ensuring no leachate formation.
- vii) Sprinkling of Jeevamrit/ bacterial culture on waste/ pits at regular intervals for speedier and odourless composting.
- viii) Turning of wet waste into pits at regular intervals (daily/weekly) for proper aeration to facilitate speedier composting.
- ix) Display of date of starting and closing and emptying of the compost pit(s) on the pits/ site and also recorded in the Log Book.
- x) Proper maintenance of compost Units/ pits by maintaining all round cleanliness and sweeping of the unit each day (preferably in evening or completion of work). Beautification of the Compost Unit site with plantation of local species and seasonal flowers.
- xi) Extraction of compost immediately/ regularly from the pits as per schedule and packaged into cloth / jute bags in standard packaging as per requirement. The proportion of compost production may vary from 1/5 to 1/6 of wet waste.
- xii) Giving brand name of compost on its own and popularize the same. Compost should be sold or distributed and a proper record be kept.
- xiii) Holding regular camps / exhibitions/ Compost Unit visits in the ULBs or nearby rural areas for popularizing the usage of compost produced.
- xiv) For getting the higher monetary value of the compost/ biogas produced from organic waste proper marketing will be done to ensure active involvement/ participation of farmers/ plant nurseries/ gardeners for use of high quality compost produced from organic waste (segregated at source) will be promoted to mitigate the connected health problems and environmental challenges.

4. Procedure for Management of Dry Waste (Recyclable/Non-Recyclable) Management Facilities / Material Recovery Facilities - MRFs

- i) Setting up of MRF(s) mandatorily and as far as possible adjacent/ clubbed with Wet Waste Processing Unit(s).
- ii) Collection of source Segregated Dry waste separately and depositing at the designated MRF(s) for further segregation as per value and category of dry waste.
- iii) Waste Collectors may take away the saleable dry waste for selling it to authorized Junk dealer(s) etc ULBs will sell at its own as per local arrangements. The ULBs may introduce picking of litter/ dry waste from areas , where it feel convenient.
- iv) Baling of segregated Non recyclables waste and disposal to authorized party for SCF/RDF which includes tyres, thermocol, shoes-chappals, rags etc combustible items.
- v) Disposal of inert waste only (max 5-10%) at the Sanitary Landfill Facility.

5. Procedure for Onsite Processing of Horticulture Waste.

- i) Mandatory on-site aerobic composting of horticulture waste in all parks, gardens, kitchen gardens/ household, education/ research/ training institutions, defence/ paramilitary/ police establishments, sport complexes etc for the management of their green waste (leaves/ grass/ fruits/ vegetables/ flowers/ branches) or any site where green waste is generated in routine to avoid expenses on transportation and environment impacts. Compost should be used in the parks/ green belts/ kitchen gardens etc.
- ii) Segregation of Horticulture waste/ mainly fallen leaves from dry waste collected during road/ street/ public places/ commercial places sweeping and composted with the composting units at nearby parks/ green belts.
- iii) Picking of dry waste from the parks/ green belts or road sides should be carried out preferably instead of sweeping. If required to collect the leaves from parks etc, leaves should be collected once in the month of March after autumn season instead of daily collection/ sweeping thereat.
- iv) The soil/sand collected in road sweeps may be used for filling the low lying patches near the road berms or otherwise. In any case, not to be dumped in water bodies.

6. Domestic Hazardous, Sanitary and E-Waste

- i) The E Waste should be deposited at designated place/ with dismantlers/ recyclers identified by the PPCB/ ULBs.
- ii) Domestic hazardous waste will be collected separately and at the regular intervals by ULB and deposited/ stored at designated place.
- iii) The Sanitary Waste will be collected separately in covered containers/bins and disposed of in a proper manner by setting up of incinerators of adequate capacity/ deep burial/ Common Bio-medical Waste Treatment Facility complying with provisions of SWM Rules, 2016 and NGT orders in OA No.237/2020 titled Purva Pravin Bora & Ors Vs MoEFCC & Ors.

7. Remediation of Legacy Waste dumpsite

As per provisions of SWM Rules, 2016 and NGT order dated 10-01-2020 in O.A. No. 606/2018 ULBs will remediate legacy waste by way of bio mining and vacate the lands buried under legacy waste for setting up of SLF/ processing units/ MRF/ beautification.

8. Setting up of Sanitary Landfill

Sanitary Landfill Facility will be set up for management of inert waste only (max 5-10% of total waste) preferably on the land recovered by remediation of legacy waste/ dump sites and near to the waste processing facility (Compost Unit & MRF). However, ULB(s) have to work for attaining Zero Landfill.

SLF should be constructed initially for 5 years capacity to tackle the unnecessarily problem of water logging.

9. Leachate Management

Control of leachate is a very important part of operating a compost units/ waste processing facilities. The compost units, if properly operated & maintained, produce minimal or no leachate. If leachate is generated, it can be treated biologically. All necessary arrangements will be carried out to stop the leachate formation at source en-route to the processing or disposal facility and its proper management as under:

- i) The storm water drain shall be designed and constructed in such a way that the surface runoff water is diverted from the landfilling site and leachates from solid waste locations do not get mixed with the surface runoff water. Provisions for diversion of storm water discharge drains shall be made to minimise leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions.
- ii) Provisions for management of leachates including its collection and treatment shall be made. The treated leachate shall be recycled or utilized as permitted, otherwise shall be released into the sewerage line, after meeting the standards specified in Schedule- II under SWM Rules, 2016. In no case, leachate shall be released into open environment.
- iii) Arrangement shall be made to prevent leachate runoff from landfill area entering any drain, stream, river, lake or pond. In case of mixing of runoff water with leachate or solid waste, the entire mixed water shall be treated by the concern authority.
- iv) Compost units should have a shed to prevent wet / bio-degradable waste from becoming excessively wet and thereby to control leachate generation.
- v) Compost windrows need to be covered either temporarily or permanently to control leachate generation particularly during rainy seasons.
- vi) Compost units/ pits/ windrow pads should be impervious, have a proper drainage system to collect leachate for re-circulation/ treatment and have an appropriate gradient to route the leachate to the collection point.
- vii) In case leachate is generated, it will be collected/ stored and will be re-circulated into the compost units to maintain moisture, contain loss of nutrients and also pollution potential.
- viii) In case of Sanitary Landfill facilities, leachate management will be focused particularly during the monsoon season.
- ix) The base for storage of wet waste before it is composted has to provide a barrier to prevent the percolation of leachate and nutrients to the subsoil and groundwater and
- x) The necessary arrangements will be made for leachate monitoring & management ensuring no damage to environment.

10. Responsibility of ULB

- i) Planning for SWM including Source segregation, D2D collection, deployment of manpower, processing of wet waste, channelizing of dry waste, maintenance of compost units/ MRFs, maintenance of records of all activities, conducting IEC, Capacity building supervision, checking violations, fines, penalties, citizen engagement etc.
- ii) Regular supervision of processing/ composting facilities/ MRFs by the ULB's Authorities i.e. Commissioners/ Joint Commissioners/ Executive Officers/ CSIs/ Sis/ Supervisors etc and recording the visit observations in the logbook for further improvement.
- iii) Charging user fee from Stakeholders.
- iv) Deployment of adequate manpower for door to door collection of waste.

- v) To maintain the deployment plan and ensure fixed timings for D2D collection of Waste.
- vi) Comply with all other provisions of SWM Rules, 2016 and Plastic Waste Management Rules (Amended), 2018 and related Byelaws as amended time to time.

11. Responsibility of Waste Generator(s)

- i) Source segregation of the solid waste in at-least three categories i.e. wet waste, dry waste and hazardous waste as well as Sanitary Waste and to store it separately in three containers.
- ii) All shopkeepers/ vendors etc to maintain at least two bins/ containers of adequate size as per their requirement for depositing dry and wet waste separately.
- iii) To provide the waste in segregated from only to Waste Collectors and not to throw it anywhere or burn.
- iv) Waste generator will not mix Sanitary Waste, Hazardous waste, E-Waste, Construction & Demolition waste into Municipal Waste. These wastes will be kept separately and handed over to the waste collectors in the similar manner.
- v) The Sanitary Waste Generator will wrap the sanitary waste into the wrapper provided by the seller/ manufacturer of sanitary pads/ diapers.
- vi) The Horticulture Waste Generator will adopt the on-site composting of horticulture waste at extend of feasibility or store it separately and handed over separately and not to throw in neighborhood / open space/ burn.
- vii) It will be at the absolute discretion of ULB as per the availability of resources and suitability of circumstances that wet waste should be collected daily and dry waste may be collected every third day or weekly.

12. Responsibility of Bulk Waste Generator/s (BWGs)

- i) All BWGs as defined per SWM Rules, 2016 and The Solid Waste Management and Cleanliness & Sanitation Bye-Laws 2020, will be primarily responsible for scientific processing & management of waste generated within their premises.
- ii) The BWGs will manage their waste primarily on-site to save environment at their own or engaging agencies/ CBOs/NGOs etc.
- iii) ULB may enter into an agreement with Bulk Waste Generator/s for lifting of their dry waste only when it is not practically feasible for BWGs to management their dry waste. The BWGs will give the prescribed user charges to the ULB for this purpose.
- iv) Proper recording of waste management operations in the log books.

13. Responsibility of Waste Collectors

- i) To collect the segregated waste from D2D in a compartmentalized and covered tricycle/ motorized vehicle and hazardous waste and sanitary waste into separate containers.
- ii) Secondary level segregation on the spot , if there is any mixed waste at the door step of the waste generator to trigger/ aware while collecting the waste.
- iii) Transportation of waste to the processing unit/ MRF/ disposal site/ transfer station.
- iv) Not dump at or create any Garbage Vulnerable Point (GVP) and unload it there.

14. Construction & Demolition Waste. C&D waste will not be mixed with Municipal Solid Waste and will be managed at the designated sites.

- i) C&D waste will be managed/ processed/ re-utilized as per C&D Waste Management Rules, 2016 and Punjab State C&D Waste Management Policy, 2020.

15. Littering, Burning and Violations of SWM/PWM Rules/NGT Orders

- i) Lettering in the jurisdiction of ULBs is strictly prohibited and will be dealt with and fines as per law.
- ii) Burning of any kind of waste including plastic waste is strictly prohibited and will be dealt with fines and penalties.

- iii) Manufacturing, storage, sell, purchase and usage of plastic bags is strictly prohibited in the State and any violation will be dealt with strictly with seizures, fines and penalties.
- iv) Use of single use plastic items will be discouraged to reduce the generation of waste at source.
- v) All institutions/ organizations/ individuals and ULB's Authorities will work together to eliminate the single use plastics during the functions/ events.
- vi) The organizers/ owners of any event/ function at public place in which 100 persons or more are participating, will take prior permission from the ULB's Authorities to ensure cleanliness.

Chandigarh
The 27th May, 2021

AJOY KUMAR SINHA, IAS,
Principal Secretary, Government of Punjab,
Department of Local Government.